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Mrd 04/04/02 CLMPTO

1-12 (cancelled).

13. (New) A method for estimating a memory-enabled transmission channel, comprising the steps of:

determining a first estimation  $\hat{h}_1$  of a pulse response of the memory-enabled transmission channel;

performing an estimation of an additive interference of the memory-enabled transmission channel; and

performing a correction of the first estimation while taking into consideration the estimation of the additive interference.

14. (New) The method according to claim 13, wherein:

the step of determining the first estimation is performed by a matched filter.

15. (New) The method according to claim 14, wherein:

the matched filter is given by

$$\hat{h}_1 = \frac{1}{T} \cdot G^H \cdot \underline{e}_1,$$

where

$$G = \begin{pmatrix} p_{1N} & p_{1N-1} & \dots & p_{11} \\ p_{2N} & p_{2N-1} & \dots & p_{21} \\ \vdots & \vdots & \ddots & \vdots \\ p_{(N+1)N} & p_{(N+1)N-1} & \dots & p_{(N+1)1} \end{pmatrix}$$

and

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13. (New) A method for estimating a memory-enabled transmission channel, comprising the steps of:
- determining a first estimation  $\hat{h}$  of a pulse response of the memory-enabled transmission channel;
  - performing an estimation of an additive interference of the memory-enabled transmission channel; and
  - performing a correction of the first estimation while taking into consideration the estimation of the additive interference.
14. (New) The method according to claim 13, wherein:
- the step of determining the first estimation is performed by a matched filter.
15. (New) The method according to claim 14, wherein:
- the matched filter is given by

$$\hat{h} = \frac{1}{T} \cdot G^H \cdot \underline{y},$$

where

$$G = \begin{pmatrix} r_{1P} & r_{1P-1} & \dots & r_1 \\ r_{1P+1} & r_{1P} & & r_2 \\ \vdots & \vdots & & \vdots \\ r_{1P+N-1} & r_{1P+N-2} & \dots & r_N \end{pmatrix}$$

and

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19. (New) The method according to claim 13, wherein:

the correction of the first estimation  $\hat{h}_k$  of the  $k^{\text{th}}$  component,  $k \in \{1, \dots, W\}$ , of estimation vector  $\hat{\mathbf{h}}$  of the pulse response  $\mathbf{h}$  is given by

$$\hat{h}_k = \begin{cases} 0, & \text{if } \hat{h}_k^2 < \sigma^2 / \gamma \\ \text{otherwise } \hat{h}_k \end{cases}$$

20. (New) The method according to claim 13, wherein:

the correction of the first estimation  $\hat{h}_k$  of the  $k^{\text{th}}$  component,  $k \in \{1, \dots, W\}$ , of estimation vector  $\hat{\mathbf{h}}$  of the pulse response  $\mathbf{h}$  is given by

$$\hat{h}_k = \sqrt{\theta \left( \hat{h}_k^2 - \sigma^2 / \gamma \right)} \cdot \hat{h}_k / |\hat{h}_k|, \text{ if } \hat{h}_k \neq 0, \text{ and}$$

otherwise

$$\hat{h}_k = 0$$

21. (New) The method according to claim 13, wherein:

the correction of the first estimation is given by a POCS algorithm.

22. (New) The method according to claim 13, wherein:

the correction of the first estimation is given by a MMSE algorithm.

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23. (New) The method according to claim 22, wherein:  
the MMSE algorithm is given by

$$\hat{\mathbf{h}} = (\mathbf{G}^H \cdot \mathbf{G} + \sigma^2 \cdot \mathbf{I})^{-1} \cdot \mathbf{G}^H \cdot \mathbf{y}_r$$

$\mathbf{I}$  being the unit matrix.

24. (New) A device for estimating a memory-enabled transmission channel, comprising:  
a channel estimator;  
an estimator of an additive interference, the channel estimator and the estimator of the additive interference act on a received signal; and  
a channel estimation correcting element for correcting a signal of the channel estimator while taking into consideration an output signal of the estimator of the additive interference.

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